

ENVIRONMENTAL LAW AND JUSTICE CLINIC • SCHOOL OF LAW

November 16, 2001

~~Mr. Barry Young~~ *Dharam*

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

By FAX: 749-5030

By U.S. Mail

Re: Public Comment on the Proposed Major Facility Permit for the Criterion Catalyst and Technologies Company (Facility A0227)

Dear Mr. Young:

I am writing you today on behalf of The Environmental Law and Justice Clinic ("ELJC") at the Golden Gate University School of Law and Our Children's Earth Foundation ("OCE"), in order to comment on the proposed Major Facility Review permit for the Criterion Catalyst and Technologies Company ("Criterion Catalysts"). We have one issue that we wish to address in this comment, related to the need for the proposed permit to have an associated statement of basis. The comment is presented in two parts, as follows:

(a) The proposed permit does not include a sufficient statement of basis as required by the federal Title V regulations

According to 40 CFR § 70.7(a)(5), every Title V draft permit must be accompanied by a "statement that sets forth the legal and factual basis for the draft permit conditions." In the absence of such documentation, it is virtually impossible for concerned citizens to evaluate BAAQMD's permit decisions or to effectively comment upon other aspects of the permit during the 30-day public comment period.

The District has previously stated it does not prepare separate statements of basis for Title V permits because the statement of basis is "contained in each permit within the citations of the applicable requirements, and where the citations are not sufficient, such as citations of the case-by-case permit conditions, by adding the basis for the case-by-case permit conditions."¹

However, the proposed permit for Criterion Catalysts does not fulfill the function of a statement of basis. The draft permit only states the applicable regulation for a source and does not provide any factual information about why that particular requirement is

¹ See Letter dated September 4, 2001 to Kathryn Lewis & Lynne Saxton, ELJC from William de Boisblanc, Director of Permit Services, BAAQMD.

applicable, and why another requirement is not. Therefore, the public is not informed as to the District's rationale for imposing, or not imposing, permit requirements. Again, in the absence of this information, meaningful public comment becomes inordinately difficult.

We believe that a proper statement of basis should include at least the following elements:²

1. Detailed descriptions of the facility, emission units and control devices, and manufacturing processes;
2. Justification for streamlining of any applicable requirements including a detailed comparison of stringency;
3. Explanations for actions including documentation of compliance with one time NSPS requirements (e.g. initial source test requirements) and emission caps; and
4. Basis for periodic monitoring, including appropriate calculations, especially when periodic monitoring is less stringent than would be expected.

When compared with other air pollution agencies around the country, the BAAQMD ranks poorly in satisfying the requirement for a statement of basis. For example, the basis statement prepared by the Northwest Air Pollution Authority for the Puget Sound Energy Whitehorn Generating Station contains a thorough description of the facility, its sources and controls, its full compliance history, and other useful information. A copy of this statement is provided as Attachment 1.

The District's decision to forego the preparation of a detailed statement of basis for Criterion Catalyst is particularly troubling given that the facility has numerous custom-built air pollution sources.

(b) The lack of a statement of basis makes it difficult for the public to assess the facility's ability to comply with the applicable regulations

It is the responsibility of the permitting authority to document, through the permit process, that appropriate conditions have been placed upon the permittee such that compliance with the applicable requirements will be assured. As part of this process, the District should therefore include as part of its basis statement a detailed assessment of a facility's history of permit violations.

Unfortunately, the District has not offered a satisfactory analysis of violations for this facility. The compliance review of Criterion Catalysts covers only the period of September 30, 2000 to October 1, 2001, and shows no permit violations. We maintain that a one-year compliance review is insufficient to decide whether compliance can be assured throughout the 5-year period covered by the permit.

² We have recently presented a more complete discussion of this point to the District (*see*, Letter from Lynne Saxton and Nicole Rainville to Mr. Ted Hull of the BAAQMD, regarding "Public Comments for Draft Title V Permits for California Oils, TriCities Waste Management, and Gas Recovery Systems," October 29, 2001).

In order to better understand the history of compliance at the facility, we reviewed the BAAQMD's Notice of Violation (NOV) files, a copy of which we obtained from the District on February 13, 2001, pursuant to a Public Records Act request. Based upon the information we received through this process, it appears that the District issued Criterion Catalysts (Site #A0227) ten NOVs between March, 1995 and April, 2000. Considering this record, along with the three equipment failures noted in the District's compliance memorandum,³ we believe that a 5-year compliance review should be completed for this facility. Furthermore, in order to reasonably conclude that compliance will be assured in the future, the District needs to explain: (i) how each of the problems identified in the review was remedied, (ii) whether the 5-year compliance history indicates any recurrent or ongoing problems at the facility, and if so, (iii) what additional conditions and limitations were added to the permit to assure compliance in the future. In addition, the public also needs to know whether any past violations have placed the facility on a schedule of compliance. All this information should be included as part of the basis statement.

In summary, without a statement of basis, the public is unable to adequately review the permit. Additionally, it appears that in the case of Criterion Catalysts, the preparation of such documentation would have enhanced both the District's and the EPA's understanding of conditions at the facility, and would have allowed these agencies to better determine the appropriate control and monitoring requirements to be included in the permit.

In the absence of a complete statement of basis, the proposed permit for Criterion Catalysts violates the federal requirements of 40 CFR Part 70. We therefore request that the proposed Title V permit be amended to include a legally and factually sufficient statement of basis.

Thank you for the opportunity to comment on this proposed Title V permit. If you have any questions please do not hesitate to contact me at the ELJC office.

Best Regards,



Ken Kloc
Staff Scientist

³ Review of Compliance Record of Criterion Catalysts Company LP (Site #A0227), BAAQMD Compliance and Enforcement Memorandum, from the Director of Enforcement to William Deboisblanc, Director of Permit Services, October 11, 2001.

ATTACHMENT 1

**STATEMENT OF BASIS FOR PUGET SOUND ENERGY
WHITEHORN GENERATING STATION**



NORTHWEST
AIR POLLUTION AUTHORITY

Representing Island, Skagit & Whatcom Counties

**PUGET SOUND ENERGY
WHITEHORN GENERATING STATION**

**AIR OPERATING PERMIT
STATEMENT OF BASIS**

May 1, 1998

**AIR OPERATING PERMIT
STATEMENT OF BASIS
INFORMATION PAGE**

Puget Sound Energy, Whitehorn Generating Station
4570 Brown Road, Blaine, Washington 98230

SIC: 4931
EPA AFS: 53-073-0028

NWAPA ID: 310-V-W

Responsible Corporate Official

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(360) 428-1617

Prepared by

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Environmental Specialist
extension 203

Air Operating Permit Number: 004	Issuance Date: May 1, 1998
Supersedes Permit Number:	Expiration Date: May 1, 2003
Application Date: June 6, 1995	Renewal Application Due:

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Puget Sound Energy Whitehorn AOP Statement of Basis

Introduction

Puget Sound Energy (PSE) Whitehorn Generating Station is required to obtain an air operating permit pursuant to Title 5 of the 1990 Federal Clean Air Act and WAC 173-401. The permit is required because PSE Whitehorn has the potential to emit more than 100 tons per year of three regulated criteria air pollutants; sulfur dioxide, oxides of nitrogen, carbon monoxide. These air pollutants are created as products of combustion during turbine operation.

The purpose of this Statement of Basis is to set forth the legal and factual evidence for the conditions set forth in PSE Whitehorn's air operating permit and to provide background information for permit review by interested parties. This Statement of Basis is not a legally enforceable document in accordance with WAC 173-401-700(8).

Facility Description

General Description

Puget Sound Energy Whitehorn is a fossil fuel fired, combustion turbine facility designed to generate electrical power for PSE customers. The facility can run on a continuous basis, however, due to economic conditions the facility has been run only intermittently since its construction in 1973. The Whitehorn Generating Station is located just west of the ARCO Cherry Point Petroleum Refinery, Blaine, Washington (appendix, figure 1). The facility consists of three combustion turbine generators, three distillate fuel storage tanks, a water purification system and an electrical substation (appendix, figure 2). The first combustion unit, permitted in 1973, is a Turbo Power Marine Twin Pack (TPM). It is comprised of two Pratt-Whitney turbine units with exhaust gasses directed into a fan driven electrical generator. The two additional combustion units were permitted in 1979. Each is comprised on a GE Frame 7 turbine with direct shaft drive to a generator. The TPM unit can only be fired on distillate fuel oils, whereas, the newer GE units can be fired on natural gas or distillate fuels. Base-load rating for the TPM is 55.9 megawatts with peak loads reaching 67.5 megawatts. Base and peak load ratings for each GE unit are 74.7 and 89.4 megawatts respectively. The combustion turbine generators typically start, operate and are shut down remotely from PSE's Redmond dispatch center. Operators located at PSE Whitehorn also have the ability to control turbine operation.

Combustion Turbine Process Description

A combustion turbine generator is a compact, self-contained power generating unit characterized by its modular construction. Each unit is made up of compressor, turbine and electric generator sections. A combustion turbine operates on the same combustion principle as a jet aircraft engine

(appendix, figure 3). Air is compressed to a pressure 10 to 15 times that of atmospheric air by a multistage compressor. The compressed air is mixed with atomized fuel and ignited in primary combustion chambers. For units 2 and 3, water is injected into primary combustion chambers to control the formation of nitrogen oxides by limiting combustion temperatures to approximately 1,900°F. The combustion gasses expand through the power turbine section, driving the turbine, which in turn drive the compressor and electrical generator. Exhaust gasses exit the exhaust stack at approximately 975°F. The turbine is air-cooled whereas, the generator is water-cooled. The simple cycle combustion turbines at PSE Whitehorn have no capacity to generate usable steam.

Emission Units and Control

Major emissions units are described in Table 1 of the permit include exhaust stacks and lube oil demister stacks for units 2 and 3. Although the vast majority of air pollutants are emitted from the operation of the combustion turbines, air pollutants are also emitted from minor sources including natural gas fired heaters used to warm buildings and fugitive emissions from normal maintenance and operations activities such as welding, painting and fuel loading. These minor sources of emissions are listed in Table 6 of the permit as insignificant emission units.

Oxides of nitrogen are controlled in units 2 and 3 (GE) by injecting water into multiple combustion chambers located on each turbine. Puget Sound Energy uses a three component system to purify and demineralize utility grade water prior to turbine injection. The three components of the system include carbon filtration, cation exchange and anion exchange. Carbon filtration removes bulk suspended solids and hydrocarbons. Cation exchange removes positively charged ions, such as calcium, magnesium and sodium, by displacing them with a hydrogen ion introduced from a cation resin. Anion exchange removes negatively charged ions, such as sulfates and chlorides, displacing them with a hydroxide ion introduced from an anion resin. Acids and bases are used to recharge cation and anion resins respectively. Demineralized water is stored in a 500,000-gallon tank located near the water treatment building.

Sulfur dioxide emissions are limited by controlling the sulfur content of fuels burned. Natural gas is supplied via an underground pipeline operated by Northwest Pipeline Corporation. Although pipeline grade natural gas inherently has an extremely low sulfur content, natural gas is analyzed for sulfur content semiannually using GPA Standard 2377-86. Sampling stations are located at five points along the pipeline. The sampling point closest to and upstream of PSE Whitehorn is in Sumas. Distillate fuel is purchased periodically in batch quantities and stored in one 4,200,000-gallon fixed roof and two 1,008,000-gallon internal floating roof storage tanks. Distillate fuels are analyzed for sulfur content whenever new fuel is received at the facility in accordance with 40 CFR 60 Subpart GG. Low sulfur diesel is the distillate fuel of choice and has a regulated sulfur content of less than 0.5% by weight.

Compliance History

Puget Sound Energy Whitehorn Generating Station was constructed in 1973 and modified in 1979. The Northwest Air Pollution Authority and EPA Region 10 issued appropriate approvals for air pollution control at those times. An air pollution performance test was conducted on units 2 and 3 November 5 - 12, 1981 while burning natural gas and #2 diesel fuel. At that time, PSE Whitehorn demonstrated that it was operating within the emission limits established in applicable approvals and regulations. The performance test data was used by Westinghouse to generate a NSPS compliance charts (figures 4 and 5). These charts are used to maintain water injection rates adequate to meet NOx emission limitations in accordance with 40 CFR 60 Subpart GG. Due to the lack of NSPS requirements at the time unit 1 was constructed, performance testing has not

been required or conducted.

Due to unfavorable economic factors related to fuel costs and electrical power prices, PSE Whitehorn has been fired only intermittently since its construction in 1973. Typical runs include monthly testing on natural gas and semiannual testing on #2 diesel. The turbines also operate for short periods of time for power generation. As of February 1998, unit 1A has operated for a total of 621 hours, unit 1B for 604 hours, unit 2 for 4302 hours and unit 3 for 3601 hours.

The compliance history for PSE Whitehorn has been good. To date, no violation notices have been issued and no air pollution complaints have been received on this source. On January 1, 1993, EPA delegated enforcement authority of 40 CFR 60 subpart GG to NWAPA. Since its construction PSE Whitehorn has been inspected by NWAPA at least annually. The vicinity of PSE Whitehorn is designated as an attainment area for all criteria air pollutants.

General Assumptions of the Permit

Permit Content

Applicable requirements that were satisfied by a single past action on the part of the source are not included in this permit. An example would be performance testing to demonstrate compliance with applicable emission limitations as a requirement of initial startup. Also, regulations that require action by a regulatory agency, but not of the regulated source, are not included.

Federal Enforceability

Federally enforceable requirements are terms and conditions that are required under the Federal Clean Air Act or under any of its applicable requirements. Local and state regulations may become federally enforceable by formal approval into the State Implementation Plan (SIP) or through other delegation mechanisms. All applicable requirements in the permit including Standard Terms and Conditions, Generally Applicable Requirements and Specifically Applicable Requirements are federally enforceable unless they are identified as *state only*. The EPA cannot enforce state only requirements.

Washington Administrative Code 173-401 is not implicitly federally enforceable although the requirements of this regulation are based on federal requirements for the air operating permit program. Upon issuance of the permit, the terms based on WAC 173-401 will become federally enforceable for the source.

Future Requirements

Applicable requirements promulgated with future effective compliance dates may be included as applicable requirements in the permit. There are no pending applicable requirements that apply to PSE Whitehorn. Some requirements that are not applicable until triggered by an action, such as the requirement to file an application prior to constructing a new source, are addressed within the standard terms and conditions section of the permit.

There are presently no pending applications to construct or modify PSE Whitehorn in such a way as to trigger New Source Review. Puget Sound Energy has certified in the permit application that the facility will meet any future applicable requirements on a timely basis.

Compliance Options

Puget Sound Energy did not request emissions trading provisions or specify more than one operating scenario in the air operating permit application therefore, the permit does not address these options as allowed under WAC 173-401-650. This permit does not condense overlapping applicable requirements (streamlining) nor does it provide any alternative emission limitations.

Permit Elements and Basis for Terms and Conditions

General Information, Attest, Facility Description and Emission Unit Identification

The PSE Whitehorn air operating permit is divided into the following sections:

- General Information
- Attest
- Table of Contents
- Emission Unit Identification
- Standard Terms and Conditions
- Generally Applicable Requirements
- Specific Requirements for Emissions Units
- Inapplicable Requirements
- Insignificant Emission Units

The Information Page of the permit identifies the source and provides general information about the permit, the responsible corporate official, and the agency personnel responsible for permit preparation, review and issuance. The Attest Page provides the NWAPA Control Officer and Staff Engineer authorization for the source to operate under the terms and conditions contained in the permit. The Emission Unit section lists emission units, emission points and control devices present at PSE Whitehorn. Additional information about the facility may be found in the operating permit application and in supplementary files.

Standard Terms and Conditions

The Standard Terms and Conditions section of the permit specifies administrative and other requirements that apply to all air operating permit sources within the jurisdiction of the NWAPA. Standard Terms and Conditions have no ongoing compliance monitoring requirements. Where there is a difference between the paraphrased term and the language of the cited regulation, the language of the cited regulation takes precedence. The terms and conditions have been grouped by function rather than numerically in an effort to make the section more readable.

Applicable requirements that simply prohibit certain actions are included in the "Prohibitions" section of the Standard Terms and Conditions. A number of requirements that would not be applicable until triggered have also been included in this section. For instance, the requirement for a source to submit an application for new source review is an example of one such requirement. This section also includes references to broadly applicable prohibitions such as "Concealment and Masking," which are applicable requirements only upon facility modification.

Generally and Specifically Applicable Requirements

Requirements that limit emissions and broadly apply to all sources within the jurisdiction of the NWAPA are identified in Table 2 - Generally Applicable Requirements. Requirements that limit emissions and apply specifically to emission units at PSE Whitehorn are identified in Table 3 and 4 - Specifically Applicable Requirements. These tables are organized by pollutant type for better readability. The first column identifies the pollutant type. The second column identifies the regulatory citation. The third column provides a brief description of the applicable requirements for informational purposes and is not enforceable. The fourth column identifies the test method associated with each applicable requirement. Where the applicable requirement fails to specify a test method, one is added to the permit in accordance with WAC 173-401-615(1)(a). The fifth column identifies monitoring, recordkeeping and reporting requirements in accordance with WAC 173-401-605(1), -615(1) & (2) and, is enforceable except that insignificant emission units are exempt from all MRRR.

Washington Administrative Code 173-401 requires that the permit include test and monitoring methods. Column five of Table 2 indicates the methods used by NWAPA, Ecology or EPA to determine violations of applicable requirements. Puget Sound Energy Whitehorn has no immediate obligation to perform these methods. If the NWAPA determines via the test method stated in column four, or other methods, that PSE Whitehorn is not complying with the associated applicable requirement, a violation of the applicable requirement may have occurred. Column five indicates monitoring PSE Whitehorn must follow to indicate compliance with the applicable requirements. Failure to perform monitoring or operation outside of a stated monitoring parameter is a violation of a permit term rather than a violation of a cited applicable requirement.

Many generally applicable requirements do not specify test and/or monitoring methods within the text of the regulation or statute even though WAC 173-401-615 requires the permit to feature monitoring and recordkeeping adequate to demonstrate compliance with such requirements. In these cases, site-specific monitoring methods (gap filling) were developed based on the characteristics of the facility, the nature of the underlying requirement, the requirements of WAC 173-401-615 and EPA guidance on monitoring.

In addition to monitoring methods, WAC 173-401-615(1)(a) requires that the permit include test methods even if no method is clearly stated by an applicable requirement. Ecology, EPA and other methods were chosen for this purpose in accordance with the limited parameter. Ecology Method 9a was selected as a visible emissions (opacity) test method while EPA source test methods were selected for sulfur dioxide, nitrogen oxides and particulate emissions limits. American Society for Testing and Materials, (ASTM) and Gas Processors Association (GPA) methods were cited as test methods for analyzing fuel-bound sulfur and nitrogen content. Since a variety of methods and fuels may be relevant, the final fuel sulfur or nitrogen determination method is reserved for the Control Officer of the NWAPA. In cases where a variety of information may be used to document non-compliance, a specification inclusive of many techniques is provided as the test method.

Opacity limitations are visually monitored using Ecology Method 9a. Opacity measurements are taken by PSE staff on a monthly basis when turbines are operating. Additional monitoring is conducted when operators observe visual emissions. If opacity is greater than the applicable 20% emission standard immediate corrective action is required and an upset condition shall be reported to NWAPA. All Method 9a opacity readings must be taken by an individual holding a valid Certification of Completion for Plume Evaluation Training from the Washington State Department of Ecology or other authorized training facility.

Sulfur and nitrogen oxide emission limits contained in the Generally and Specifically Applicable Requirements section of the permit are inherently met if the turbines burn only pipeline grade natural gas containing less than 4 ppm by weight sulfur. Natural gas is analyzed for H₂S concentrations semiannually using GPA Standard 2377-86 in accordance an August 10, 1993, letter from Jim McCormick, EPA Region 10. Fuel bound nitrogen in natural gas is inherently insignificant and therefore needs no ongoing fuel test methodology. However, when PSE Whitehorn burns oil based distillate fuels, sulfur and nitrogen oxide emissions are sensitive to the amount of fuel-bound sulfur and nitrogen. American Society for Testing and Materials (ASTM) test methods are used to determine fuel-bound sulfur and nitrogen concentrations in fuel oils. Test results are used to indicate compliance directly or indirectly depending on the applicable requirement.

Injecting water into the turbine combustion chambers in units 2 and 3 during operation controls nitrogen oxide emissions. Water injection rates are determined by compliance demonstration charts specific to GE Frame 7 units (see appendix figure 4). These charts were generated following analysis of 1981 performance test data. Automated alarm systems are configured to activate when the water injection rate falls within 10% of the compliance demonstration level. If water injection rates fall below the compliance demonstration level, PSE is required to take immediate corrective action and notify NWAPA of an upset condition ASAP but no later than 12 hours after the incident occurs.

Requirements pertaining to operation and maintenance, nuisance, fugitive emissions and odor may be met through adherence to PSE Whitehorn's internal operation and maintenance (O&M) plan and their a commitment to timely complaint response and follow-up corrective action. It should be noted that PSE Whitehorn's O&M plan is not included as part of their air operating permit. Due to its modular design, lack of complexity and lack of a complaint history, it is unlikely that PSE Fredonia will have any problems related to odors or fugitive emissions.

Specific New Source Review (NSR) Requirements

Unit 1 was built before the adoption of federal New Source Performance Standards (NSPS) for Stationary Gas Turbines (40 CFR 60 Subpart GG) and as such, these rules do not apply. Units 2 and 3 however, were built after the adoption of the NSPS and therefore, specific NSPS regulations apply along with Subpart A, General Provisions for NSPS sources. The Specifically Applicable Requirements section of the permit includes regulatory orders issued under New Source Review (NSR) procedures. These include a Prevention of Significant Deterioration (PSD) permit issued by EPA Region 10 on December 19, 1979. The NSR approval may be more stringent than the overlying NSPS requirements. Furthermore, NSR approvals go beyond simply limiting the concentration of SO₂, NO_x, and particulate emissions in the stack. They also limit the pollutant pounds per hour that the facility can emit. Together these limitations assure that public health is not impacted locally or that regional air quality is not significantly degraded. The PSD modeling analysis also demonstrated that there should be no exceedance of the ambient SO₂ standards in accordance with NWAPA 410. If new construction or modification takes place at PSE Whitehorn, new source review procedures may require any additional regulations and controls.

Inapplicable Requirements and Insignificant Emissions Units

Washington Administrative Code 173-401-640 allows a determination regarding the applicability of requirements with which the source must comply. Table 5 of the permit lists requirements

deemed inapplicable based on the applicability of the cited regulation. These units inherently have extremely low emissions. Emissions from automobiles and vents from buildings are examples of these exempt emission points.

Table 6 of the permit lists emission units present at PSE Whitehorn that are exempt based their size or production rates in accordance with WAC 173-401-533. Column three of the table provides a specific justification for the exemption based on operational characteristics for each unit.

Public Docket

Copies of PSE Whitehorn's air operating permit and permit application and any technical support documents are available at the following locations:

Northwest Air Pollution Authority
1600 South Second Street
Mount Vernon, WA 98273-5202

Bellingham Public Library
210 Central Street
Bellingham, WA 98225

Ferndale Library
2222 Main Street
Ferndale, WA 98248

Definitions and Acronyms

Definitions are assumed to be those found in the underlying regulation. A short list of definitions has been included to cover those not previously defined.

An "applicable requirement" is a provision, standard, or requirement in any of the listed regulations or statutes as it applies to an emission unit at a stationary source.

An "emission unit" is any part or activity of a stationary source that emits or has the potential to emit pollutants.

"permit" means for the purposes of the air operating permit program an air operating permit issued pursuant to Title 5 of the 1990 Federal Clean Air Act.

"Technology-Based Emission Standard" means a standard, the stringency of which is based on determinations of what is technologically feasible considering relevant factors.

"State" means for the purposes of the air operating permit program the NWAPA or the Washington State Department of Ecology.

The following is a list of Acronyms used in the Air Operating Permit and/or Statement of Basis:

AOP	Air Operating Permit
ASTM	American Society for Testing and Materials

CFR	Code of Federal Regulations
FCAA	Federal Clean Air Act
MRRR	monitoring, recordkeeping and reporting requirements
NO _x	nitrogen oxides
NSPS	New Source Performance Standard
NSR	New Source Review
NWAPA	Northwest Air Pollution Authority
OAC	Order of Approval to Construct
PSE	Puget Sound Energy
RCW	Revised Code of Washington
SIP	State Implementation Plan
SO ₂	sulfur dioxide
WAC	Washington Administration Code

Appendix

Figure 1, location map

Figure 2, site plot

Figure 3, combustion turbine flow diagram

Figure 4, water injection rate compliance chart, natural gas

Figure 5, water injection rate compliance chart, distillate oil